Tennessee Pollution Prevention Partnership Success Story

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Y-12 Reduce, Reuse, and Recycling Initiatives

The Member

The Y-12 National Security Complex is a high-precision manufacturing assembly and inspection facility comprised of more than 20 facilities and organizations located in some 500 buildings on 800 acres near Oak Ridge, Tennessee. Operated by BWXT Y-12 L.L.C. for the National Nuclear Security Administration, Y-12 plays a vital role in the Department of Energy's (DOE) Nuclear Weapons Complex.

The Story

BWXT Y-12 continually searches for ways to reduce waste generation, reuse materials, and recycle items that would otherwise become waste. In 2004, BWXT Y-12 completed projects to reduce waste generated in radiological contamination areas, transfer excess nitric acid to another facility for use, and add three waste streams to Y-12's extensive recycling program.

Reduce - Radiological Area Reductions

BWXT Y-12 reduced the number, size (footprint), and radioactivity level of radiological contamination areas within the Y-12 Complex in order to decrease the generation of low-level radioactive wastes (LLW) in these areas. LLW is generated largely due to requirements for personnel to wear and change personal protective equipment (PPE) when entering and exiting contamination areas.

Reuse - Nitric Acid Transfer

Due to mission changes, Y-12 could no longer use 14,400 gallons of 55% nitric acid. The acid could not be returned to the vendor due to its unique characteristics, and traditionally would be managed as hazardous waste. A total of 13,800 gallons of the acid was delivered by tanker truck to the DOE Savannah River Site for reuse.

Recycle - Batteries / Ballasts / Wood

BWXT Y-12 researched recycling vendor options and initiated contracts with three companies to add three new recycle streams to the BWXT Y-12 recycling program: nickel metal hydride batteries, polychlorinated biphenyl (PCB) and non-PCB lighting ballasts, and wood pallets and scrap. Recyclers contracted were INMETCO, Lighting Resources, and Natural Resource Recovery of Tennessee (operators of the Solway Greenwaste Facility).

The Success

The radiological area reduction project reduced Y-12's contamination areas by over 14,000 square feet, reduced the LLW generated by over 15%, and saved over $2.4 million in avoided waste management, disposal, and PPE costs. The project supports BWXT Y-12's goal to reduce LLW 80% by 2005.

The nitric acid transfer project reduced hazardous waste by 84.5%, with a cost avoidance of more than $1.2 million. The project supports Y-12's 50% hazardous waste reduction goal for this waste stream.

BWXT Y-12 transferring nitric acid to tanker for transport.

Adding three waste streams to Y-12's recycling program significantly reduced industrial and hazardous waste generation and resulted in a cost savings of more than $39,680. The project helped Y-12 surpass their 45% industrial waste-recycling goal in 2004.

The Pollution Prevented

Together, these initiatives reduced more than 436 metric tons of waste for a total cost avoidance of more than $3.6 million. This initiative resulted in reductions of more than 314 metric tons of LLW, more than 70 metric tons of RCRA hazardous waste, 769 kg of TSCA hazardous waste, and 52 metric tons of industrial solid waste.

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